

Amendment in Response to the Final Office Action dated June 19, 2007
U.S. Patent Application Serial No. 10/823,075
Our Ref.: 80-20702276 (formerly 5974-155)

REMARKS

In the Final Office Action dated June 19, 2009 (the "Final Office Action"), claims 22-23, 26-27 and 42-43 were rejected under 35 U.S.C. 102(e) as being anticipated by Ohki et al. (6,529,206, "Ohki"). Claims 28-30 and 43 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ohki and Miller (6,229,542, "Miller.")

Applicants respectfully traverse each of these rejections. Applicants' Remarks are preceded by quotations of related comments of the Examiner, presented in small bold-faced type.

In order to clarify some issues regarding the clarity of the Final Office Action and in order to discuss the differences between the claimed invention and the cited prior art, the undersigned contacted the Examiner to request an interview. The Examiner courteously responded to the request. The first part of the interview took place on December 14, 2007 and the second part of the interview took place on December 18, 2007.

A) Summary of the interviews with the Examiner on December 14, 2007 and December 18, 2007:

The undersigned extends her appreciation for the time and opportunity granted by the Examiner to discuss the outstanding issues regarding this application.

During the course of the interview on December 14, 2007, the undersigned brought to the attention of the Examiner that the rejections in the Final Office Action did not recite current claim language, omitted limitations from the current claims (see a detailed explanation below), and in addition, used an unpublished citation system, therefore posing an impediment for the undersigned to identify the support for the rejections of all the claimed limitations. The Examiner acknowledged the recitation of old claim language in the Final Office Action and the usage of an unpublished paragraph numbering system, and provided an explanation on both issues to the undersigned. No explanation was provided on the omission of claim limitations from the rejections. The undersigned also took the opportunity to discuss the differences between Applicants' claimed invention and the Ohki and Miller references cited by the Examiner. These arguments, as explained to the Examiner in the course of the interview are detailed below in the "Rejections" Section C. During the course of the interview on December 18, 2007, the

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undersigned and the Examiner discussed possible claim amendments. However, an agreement was not reached on the amendments discussed. The undersigned reiterates her appreciation to the Examiner for the amendments proposed.

B) Applicants' request for withdrawal of the Final Office Action:

Upon a new review of the Final Office Action, in light of the explanations provided by the Examiner during the December 14, 2007 interview, the Applicants maintain the arguments presented below, with specific reference to the examples provided.

As an initial matter, Applicants respectfully note that paragraph 4 of the Final Office Action, addressing the rejection of claim 22 does not use the language of the currently pending claim 22 (e.g. "selecting a projection plane for a three dimensional model" or "displaying a two dimensional visualization of a projection of the model in the projection plane"). In addition, claim language is omitted. For example, the step of claim 22 "generating the projection of said three-dimensional model in ..." is entirely omitted from the rejection. The text of the Final Office Action states:

Regarding claim 22, Ohki et al show: a computer system operation method for facilitating viewing of a computer generated model of an object on a display (abstract, Summary para 29), the method comprising:

selecting a projection plane for a three dimensional model (Summary para 29, 20, Detailed Descr. para 25, 26. Figure 3); and

displaying a two-dimensional visualization of a projection of the model in the projection plane, wherein the projection plane is the plane of the display (Figure 3, 4, 6, Detailed Descr. para 69, 71, 98, 100). Note the second projection plane in which the projection is generated (Descr. para 69, 71, 98, 100, 122). Note converting the model into the two dimensional visualization (Detailed Descr. para 25-26).

Final Office Action, pg. 2-3.

Claim 22, as it was pending when the Final Office Action issued, is presented below. The underlined text indicates the terms recited in the rejections. The highlighted *italics* text (i.e. "converting" and "two-dimensional visualization" in the converting step) indicates that the recitation of the text in the rejection is not contiguous with the remaining limitations of the step:

22. A computer system operation method for displaying a three-dimensional model of an object on a display, the method comprising the steps of:

converting the three-dimensional model of the object to a *two-dimensional visualization* of the

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object;
receiving a projection plane;
displaying said two-dimensional visualization in said projection plane; and
generating the projection of said three-dimensional model in said projection plane.

Applicants respectfully submit that as evidenced above, at least the rejection of claim 22 in the Final Office Action is incomplete.

Applicants respectfully submit that without a detailed and complete rejection of the pending claims, Applicants are unable to effectively respond to the Final Office Action. Moreover, a detailed and complete rejection of the pending claims is required in order to comply with 707.07(f) and 707.07(g). In addition, a 35 U.S.C. 102(e) rejection of at least claim 22 is not supported by the arguments presented. Such a rejection requires that all claim limitations be described by the cited reference. As stated by the MPEP:

TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). (...)"The identical invention must be shown in as complete detail as is contained in the ... claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)..

MPEP, 2131 (emphasis added)

A complete and fully supported rejection of all limitations in claim 22 is also necessary to support a rejection of the other pending independent claims of the application: claims 30 and 44. Thus, Applicants respectfully request that the Final Office Action be withdrawn and that a new Office Action be issued in its place.

In addition, as Applicants explained in the Amendment filed in response to the previous Office Action (the Office Action dated September 14, 2006), the citations from Ohki and Miller use a paragraph numbering system that does not appear in the published patents. While Applicants have manually numbered the paragraphs, there does not seem to be a correspondence with the paragraphs cited in the Final Office Action. For example, paragraph 4 of the Final Office Action cites to "Summary para 29, 20"

of Ohki (line 4 of paragraph 4). However, the Summary section of Ohki does not contain such paragraphs. During the course of the December 18, 2007 interview, the Examiner explained to the undersigned that the paragraphs are numbered within every section, starting with the title of the Section as paragraph 1. However, even using such a numbering system does not explain the example provided above, namely, the Summary section of Ohki does not contain paragraphs 29, 20.

While Applicants appreciate the explanations provided by the Examiner, Applicants respectfully submit that clear citation of the references is necessary for Applicants' to properly understand and address the rejections in the Final Office Action. Moreover, clear citation of the references is required in order to comply with 37 CFR 1.104 and MPEP 707.05, 707.07(f) and 707.07(g). Thus, Applicants respectfully request that the Final Office Action be withdrawn and a new Office Action be issued with the citations to the Ohki and Miller references using the pertinent column and lines to avoid confusion regarding the cited text.

C) Rejections:

Claim Rejections - 35 USC § 102

Claims 22-23, 26-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohki et al (6529206).

Regarding claim 22, Ohki et al show: a computer system operation method for facilitating viewing of a computer generated model of an object on a display (abstract, Summary para 29), the method comprising:

selecting a projection plane for a three dimensional model (Summary para 29, 20, Detailed Descr. para 25, 26, Figure 3); and

displaying a two-dimensional visualization of a projection of the model in the projection plane, wherein the projection plane is the plane of the display (Figure 3, 4, 6, Detailed Descr. para 69, 71, 98, 100). Note the second projection plane in which the projection is generated (Descr. para 69, 71, 98, 100, 122). Note converting the model into the two dimensional visualization (Detailed Descr. para 25-26).

Final Office Action, pg. 2-3.

Applicants respectfully traverse the Examiner's rejection. Applicants respectfully disagree with the assertion in the Final Office Action that Ohki anticipates claims 22-23 and 26-27. To anticipate a claim, the reference must teach every element of the claim (35 U.S.C. § 102 and MPEP, 2131). Applicants respectfully submit that Ohki does not teach every element of at least independent claim 22. Applicants respectfully submit that Ohki discloses an image processing technique that allows three-

dimensional editorial work to be effected on a two-dimensional moving picture, wherein “a projected image of a three-dimensional object is displayed in a frame which is a constituent of a moving picture” and it is “transformed into a corresponding two-dimensionally developed expanded image” (Ohki, Abstract, emphasis added.) Ohki’s technique allows for editorial changes in a projected image that are consistent with the three-dimensional representation of the projected image. In Ohki’s system, an external interface receives externally supplied data such as two-dimensional images captured by a camera.

Ohki does not teach at least converting a three-dimensional model of an object to a two-dimensional visualization of the object, as claimed by Applicants in independent claims 22, 30 and 42. Ohki’s image processing starting point are projected images (two-dimensional) of three-dimensional objects (Ohki, Fig. 41-45). Ohki defines a projected image in the following manner:

For example, when the camera 9 (FIG. 3) captures the image of a three-dimensional object in three-dimensional space shown in FIG. 18A, a two-dimensional image outputted by the camera 9 displays a projected image (projected picture), as shown in FIG. 18B, which is the three-dimensional object being projected onto a screen. Therefore, a two-dimensional image on which such a projected image is displayed is stored in an image buffer (except for a paste buffer).

Ohki, col. 22, lines 36-44.

Thus, Ohki does not convert a three-dimensional model of an object to a two-dimensional visualization of the object, but captures an image of a three-dimensional object, which results in a two-dimensional projected image of the object.

In fact, Ohki does not teach or suggest a computer-generated “three dimensional model” of an object on a display. The Final Office Action, despite not reciting the current claim language, provides for a number of citations from Ohki in reference to limitations that contain “three dimensional model”:

Ohki et al show: a computer system operation method for facilitating viewing of a computer generated model of an object on a display (abstract, Summary para 29), the method comprising:

selecting a projection plane for a three dimensional model (Summary para 29, 20, Detailed Descr. Para 25, 26. Figure 3)

(...)

Note converting the model into the two dimensional visualization (Detailed Descr. para 25-26).

Final Office Action, pg. 2-3.

While Applicants respectfully submit that paragraphs 29 and 30 in the Summary Section cannot be identified in the Ohki reference following the system explained by the Examiner in the December 14, 2007 interview, Applicants respectfully submit that neither the abstract nor paragraphs 25 or 26 of the Detailed Description Section, nor Figure 3 of Ohki disclose a “three dimensional model”. Furthermore, Applicants respectfully note again that claim limitations are omitted from the rejection in the Final Office Action, thus providing inadequate support to sustain a 35 USC §102 rejection. For example, while Applicants claim 22 required (previously to the current amendment) “converting the three-dimensional model of the object to a two-dimensional visualization of the object” (emphasis added), the rejection simply states “converting the model into the two dimensional visualization”. The relevance of this particular example was detailed above and is further detailed below.

In paragraphs 25 and 26 as cited by the Examiner, Ohki teaches to recognize “shapes” in the planes constituting the projection of a three-dimensional object. Ohki states:

Each Shape button 32 is operated when the shape (shape information) of the surface of a three-dimensional object is input. In the main window shown in FIG. 8, the Shape buttons 32 consist of a Rectangle button, a Cylinder button, a Sphere button, and a Cone button that designate a rectangle, a cylindrical side surface, a sphere, and a conical surface, respectively.

Ohki, col. 10, lines 47-51

As stated by Ohki, these “shapes”, as its name indicates, correspond to generic surface types (sphere, cone, rectangle, etc...). These “shapes” are not three-dimensional models of the object that will be visualized in two-dimensions. Shape buttons corresponding to these shapes are used by the user to designate surface types on the projected images of the three-dimensional object. Applicants’ claim 22 requires “converting the computer-generated three-dimensional model of the object to a computer-generated two-dimensional visualization of the object”. Thus, in Applicants’ claim, the three-dimensional model of the object is linked to the two-dimensional visualization, which is of the same object. For example, the automobile in the embodiment of the invention represented in Figures 2-3, and 5-21 of Applicants’ Specification is the same object of the three-dimensional model as of the two-dimensional visualization. This is not shown or suggested by Ohki.

In Ohki, the shape buttons correspond to generic shapes, without any specific association with particular parameters (i.e. with a particular object). The parameters are later specified separately by users,

by designating some points on the planes of the two-dimensional image of the projected three-dimensional object. Later, Ohki teaches that copying can be effected:

Copying is a process that consists of generating an expanded image formed by expanding, on a two-dimensional plane, planes constituting a three-dimensional object displayed in a two-dimensional image stored in the buffer of interest, and storing the expanded image in the paste buffer.

Ohki, col. 11, lines 42-29.

Thus, Ohki teaches to create an expanded image of planes of the two-dimensional projection of a three-dimensional object, not a two-dimensional visualization of a selected generic shape. Therefore, Ohki does not teach “converting the computer-generated three-dimensional model of the object to a computer-generated two-dimensional visualization of the object”. In Ohki, there is no computer generated three-dimensional model of an object, and therefore no conversion of the three-dimensional model of such object. In Ohki, two-dimensional images of objects are captured by a camera. Then, shapes within these two-dimensional images are recognized and expanded on a two-dimensional plane. In other words, in Ohki, there is no conversion from a three-dimensional model to a two-dimensional visualization. In Ohki, there is a transformation from a two-dimensional projected image to a two-dimensional expanded image.

Furthermore, if Ohki dealt with three dimensional models of objects such as those of Applicants’ claimed invention, as opposed to the two dimensional projections, his invention would not be necessary, as a three dimensional model could be manipulated in the three dimensional space and be edited accordingly, for example. Ohki however, cannot do that, as Ohki’s starting point are two-dimensional images of objects that are captured by a camera, hence the need to resort to his invention for editorial manipulations.

Thus, for at least the foregoing reasons, Applicants respectfully submit that Ohki does not teach every element of at least independent claims 22, 30 and 42, and therefore, it does not anticipate Applicants’ invention.

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Claim Rejections - 35 USC § 103

Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohki et al (6529206) and Miller (6229542)

Regarding claim 28, in addition to that mentioned for claim 27, Ohki et al do not go into the specific details of the manipulator tool including a plurality of quadrants with each of said plurality of quadrants representing a predetermined number of degrees of rotation in a predetermined direction around an orthogonal axis, such that the step of receiving a selected projection plane includes the step of: receiving a selected one of said plurality of quadrants; and rotating said projection plane said predetermined number of degrees and in said predetermined direction around said orthogonal axis associated with said selected quadrant, but does mention efficient manipulation of projection planes in a three dimensional user interface. Furthermore, Miller shows this (Figures 5, 7, 8, Detailed Descr. para 3, 14, 18) for efficient manipulation of projection planes in a three dimensional user interface. It would have been obvious to a person with ordinary skill in the art to have this in Ohki et al, because it would allow efficient manipulation of projection planes in a three dimensional user interface.

Final Office Action, pg. 4.

Regarding claim 27, note the step of receiving a selected projection plane includes the step of: providing a manipulator tool button for selecting said projection plane (Detailed Descr. para 25, 103-105).

Final Office Action, pg. 3, regarding Ohki.

Applicants respectfully traverse the Examiner's rejection. Applicants respectfully submit that neither Ohki nor Miller, alone or in combination anticipate or render obvious pending claims 22-23, 26-30 and 42-44.

As the MPEP recites:

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

MPEP § 2142; and

2143.03 All Claim Limitations Must Be Taught or Suggested

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of

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that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

MPEP § 2142

Applicants respectfully submit that the Final Office Action has not made a prima facie case of obviousness.

Firstly, Ohki does teach or suggest all the limitations of at least independent claims 22 and 30, either alone (for at least the same reasons as those presented above), or when combined with Miller. Miller teaches a method and system to manage windows in three dimensions in a two dimensional windowing system. Miller's method improves windowing systems by extending the representation of a window to include depth. This addresses the two-dimensional window overcrowding problem by allowing windows to be positioned and arranged within a three dimensional space.

Miller does not teach at least converting a three-dimensional model of an object to a two-dimensional visualization of the object, as claimed by Applicants in independent claims 22, 30 and 42.

In addition, Miller does not teach the limitations that the Final Office Action states it does. Miller does not teach at least a manipulator tool that "includes a plurality of quadrants, each of said plurality of quadrants representing a predetermined number of degrees of rotation in a predetermined direction around an orthogonal axis, wherein the step of receiving a second projection plane includes the step of:

receiving a selected one of said plurality of quadrants; and

rotating said first selected projection plane said predetermined number of degrees and in said predetermined direction around said orthogonal axis associated with said selected quadrant", as required by claims 28 and 29.

Miller does not teach either at least "a user interactive device tracking the circumference of a circle displayed on said computer screen, wherein selecting the interactive device and rotating it in a clockwise or counter-clockwise direction will cause said first projection plane to rotate about an axis which is perpendicular to the computer screen", as required by claim 30.

Secondly, even if Ohki included a description of each of the claimed limitations as stated in the Final Office Action, which it does not, Applicants respectfully submit that there is no motivation for one of ordinary skill in the art to modify Ohki in view of Miller. There are three possible sources for a motivation to modify a reference: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the arts. *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1457-58 (Fed. Cir. 1998). None of these three possible sources have been demonstrated in the Final Office Action. Applicants respectfully submit that it would not have been obvious to modify Ohki in view of Miller, as Ohki is concerned with effecting three-dimensional editorial work on a two-dimensional moving picture. One of skill in the art concerned with the problem of manipulating the projection plane of a three-dimensional model in computer aided design and computer aided manufacture applications would not consult Ohki for guidance, nor arrive at Applicants' claimed invention through Ohki's teachings. It would not be possible. Ohki does not teach manipulation of three dimensional models. Thus, one of skill in the art would not and could not obtain any of the advantages offered by Applicants' claimed invention (e.g. decreased computing time and increased productivity) even if Ohki was consulted. Miller is concerned with managing windows in three dimensions in a two dimensional windowing system. Miller does not teach the manipulator tools of the invention or rotation of an interactive device. Thus, one of skill concerned with learning these tools for manipulation of projection planes of three dimensional models would not be motivated to resort to Miller either. Even if one of skill in the art were to combine Ohki and Miller, it would simply not be possible to arrive at Applicants' claimed invention. Hence, thirdly, even if one of skill in the art were to combine Ohki and Miller, one of skill in the art would not have a reasonable expectation of success.

For at least the foregoing reasons, Applicants respectfully submit that the Final Office Action has not made a prima facie case of obviousness. Also for at least the foregoing reasons, Applicants respectfully submit that at least pending independent claims 22, 30 and 42 are distinguishable over Ohki and Miller alone or in combination, and notice to the effect that these claims are in condition for immediate allowance is respectfully requested.

Claims 23 and 26-29 depend from independent claim 22, and define further steps of the method. Claims 43-44 depend from independent claim 30, and define further steps of the method. Accordingly, these claims are patentable for the reasons noted above with respect to claims 22 and 30 as well for the

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additional steps recited therein. Accordingly, notice to the effect that dependent claims 23, 26-29 and 43-44 are in condition for immediate allowance is respectfully requested.

D) Amendments to the claims:

Applicants hereby submit amendments to claims 22, 26-30 and 42 which the Examiner may find provide language for more suitably defining the invention. Applicants respectfully submit that no new matter has been added.

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CONCLUSION


For the foregoing reasons, allowance of this application is courteously urged.

Claims 22, 26-30 and 42 have been amended. Claims 22-23, 26-30 and 42-44 are now pending and believed to be in condition for allowance. Applicants have made a diligent effort to place this application in better condition for immediate allowance and notice to this effect is earnestly solicited. The Examiner is respectfully requested to reconsider the application at an early date with a view towards issuing a favorable action thereon. If upon the review of the application, the Examiner is unable to issue an immediate notice of allowance, he is respectfully requested to telephone the undersigned attorney at (212) 895-1376 with a view towards resolving the outstanding issues.

The Commissioner is authorized to charge and fees required in connection with this submission to Deposit Account No. 50-0521.

Respectfully submitted,

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